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Appeal Brief dated April 21, 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	Atty. Docket No.:	003797.00623
Chkodrov, et al.		
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Method For Maintaining Information About Multiple Instances Of An Activity		

APPEAL BRIEF

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This is an Appeal Brief in accordance with 37 C.F.R. § 41.37(c) filed in support of applicant's December 20, 2007, Notice of Appeal. Appeal is taken from the Advisory Action dated September 18, 2007. Please charge any necessary fees in connection with this Appeal Brief to our Deposit Account No. 19-0733.

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I. REAL PARTY IN INTEREST

The owner of this application, and the real party in interest, is Microsoft Corporation.

II. RELATED APPEALS AND INTERFERENCES

There is one related pending Appeal known to the appellant, which involves U.S. Patent Application Ser. No. 10/157,968, Pub. No. US 2003/0225769 A1, titled "Support for Real-Time Queries Concerning Current State, Data and History of a Process." There has been no decision on the appeal.

III. STATUS OF CLAIMS

Claims 1-46 are pending and rejected. All of the pending claims are shown in the attached appendix.

Claims 1-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-46 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter.

Claims 1, 23, 45, 47 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 18, 28, 34, 39 of co-pending Application No. 10/670,561, filed on 9/25/2003, and now issued as U.S. Patent No. 7,149,736. .

Claims 1-19, 23-41, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bello et al, U.S. Patent No. 6,477,525 in view of Nakano et al, U.S. Publication No. 2003/0217075.

Claim 20-22, 42-44, 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bello et al in view of Nakano as applied to claims 1, 23, above, and further in view of Colossi et al. U.S. Publication No. 2004/0139061.

Claims 47-49 were previously canceled without prejudice or disclaimer.

Applicant hereby appeals the rejections of claims 1-46.

IV. STATUS OF AMENDMENTS

An amendment, as required by paragraph 11 of the Final Office Action dated August 7, 2007, has been made to paragraph [22] of the specification to include the publication number, US 2003/0225769 A1, of Application Ser. No. 10/157,968. No other amendments subsequent to the Final Office Action dated August 7, 2007 have been made, and all other prior amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In making reference herein to various portions of the specification and drawings in order to explain the claimed invention (as required by 37 C.F.R. § 41.37(c)), applicant does not intend to limit the claims; all references to the specification and drawings are illustrative unless otherwise explicitly stated.

Certain embodiments of the present invention are directed to maintaining information about multiple instances of an activity in separate database tables to prevent degradation of response times when database users access the information for the instances. (Paragraph 10, pg. 6, lns. 15-16; Paragraph 26, pg. 11, ln. 10 – Paragraph 29, pg. 14, ln. 7). In one aspect of the invention, separate database tables are maintained for data corresponding to active instances of a business' or organization's activities and for data corresponding to inactive instances of the business' or organization's activities. (Paragraph 10, pg. 6, lns. 16-22). In another aspect, multiple database tables can be maintained for data corresponding to inactive instances of an activity. (*Id.*) In still another aspect, data from the active instances table and one or more inactive instances tables are processed to generate combined analysis data. (*Id.*)

Independent claim 1 is directed to a method for maintaining information regarding multiple instances of an activity, each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, the method comprising: creating a record in a first database table for each of the multiple instances in the active condition, each record containing a field for each

of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the active condition (Paragraph 27, pg. 12, lns. 3-20; Figure 4; Figure 5; Paragraph 30, pg. 14, lns. 9-13; App. B); assigning, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition (Paragraph 28, pg. 13, lns. 1-18; Figure 6; Paragraph 30, pg. 14, lns. 13-21; App. B; App. C; Paragraph 36, pg. 18, ln. 11 – pg. 19, ln. 2); deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition (Paragraph 28, pg. 13, lns. 1-18; Figure 6; Paragraph 34, pg. 16, ln. 19 – pg. 17, ln. 12; App. C; Paragraph 26, pg. 11, ln. 10 – Paragraph 29, pg. 14, ln. 7); and, creating, for records deleted from the first table, a corresponding record in a second database table (Paragraph 28, pg. 13, lns. 1-18; Figure 6; Paragraph 34, pg. 16, ln. 19 – pg. 17, ln. 12; App. C).

Independent claim 23 is directed to a computer-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising: creating a record in a first database table for each of multiple instances of an activity, wherein each instance has an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, the first table records are created for instances in the active condition, and each record of the first table contains a field for each of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the

active condition (Paragraph 27, pg. 12, Ins. 3-20; Figure 4; Figure 5; Paragraph 30, pg. 14, Ins. 9-13; App. B); assigning, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition (Paragraph 28, pg. 13, Ins. 1-18; Figure 6; Paragraph 30, pg. 14, Ins. 13-21; App. B; App. C; Paragraph 36, pg. 18, ln. 11 – pg. 19, ln. 2); deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition (Paragraph 28, pg. 13, Ins. 1-18; Figure 6; Paragraph 34, pg. 16, ln. 19 – pg. 17, ln. 12; App. C; Paragraph 26, pg. 11, ln. 10 – Paragraph 29, pg. 14, ln. 7); and creating, for records deleted from the first table, a corresponding record in a second database table (Paragraph 28, pg. 13, Ins. 1-18; Figure 6; Paragraph 34, pg. 16, ln. 19 – pg. 17, ln. 12; App. C).

Independent claim 45 is directed to a data processing apparatus for maintaining information regarding multiple instances of an activity, each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, comprising: at least one data storage device (Paragraph 24, pg. 10, Ins. 5-11; *see also* US Patent Publication No. 2003/0225769, Paragraphs 53-55 and Figure 1); at least one user input device (Paragraph 24, pg. 10, Ins. 5-11; *see also* US Patent Publication No. 2003/0225769, Paragraph 55 and Figure 1); and a processor operatively connected to said storage device and said user input device, wherein the at least one data storage device has stored thereon a set of instructions which, when executed, configure said processor to ((Paragraph 24, pg. 10, Ins. 5-11; *see also* US Patent Publication No. 2003/0225769, Paragraphs

53-55 and Figure 1): create a record in a first database table for each of the multiple instances in the active condition, each record containing a field for each of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the active condition (Paragraph 27, pg. 12, lns. 3-20; Figure 4; Figure 5; Paragraph 30, pg. 14, lns. 9-13; App. B), assign, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition (Paragraph 28, pg. 13, lns. 1-18; Figure 6; Paragraph 30, pg. 14, lns. 13-21; App. B; App. C; Paragraph 36, pg. 18, ln. 11 – pg. 19, ln. 2), delete from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition (Paragraph 28, pg. 13, lns. 1-18; Figure 6; Paragraph 34, pg. 16, ln. 19 – pg. 17, ln. 12; App. C; Paragraph 26, pg. 11, ln. 10 – Paragraph 29, pg. 14, ln. 7), and create, for records deleted from the first table, a corresponding record in a second database table (Paragraph 28, pg. 13, lns. 1-18; Figure 6; Paragraph 34, pg. 16, ln. 19 – pg. 17, ln. 12; App. C).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- (1) Whether claims 1-46 were properly rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
- (2) Whether claims 1-46 were properly rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter.
- (3) Whether claims 1, 23, 45, 47 were properly rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 18, 28, 34, 39 of co-pending Application No. 10/670,561, filed on 9/25/2003, and issued as U.S. Patent No. 7,149,736.
- (4) Whether claims 1-19, 23-41, and 45 were properly rejected under 35 U.S.C. 103(a) as being unpatentable over Bello et al., U.S. Patent No. 6,477,525 in view of Nakano et al., U.S. Publication No. 2003/0217075.

VII. ARGUMENTS

The discussion below, unless otherwise noted, addresses the rejection of independent claims 1, 23 and 45. Applicants respectfully request that the rejections of the remaining dependent claims 2-22, 24-44, and 46, which are not separately addressed with respect to every rejection, be reversed for at least the reasons supporting reversal of the independent claims from which they depend and for the additional features recited therein.

(1) Rejection of Claims 1-46 Under 35 U.S.C. §112, Second Paragraph (Paragraphs 14-24 of the Final Office Action)

Claims 1-46 stand finally rejected under 35 U.S.C. § 112, second paragraph. Applicants respectfully submit, however, that the rejections do not set forth a proper *prima facie* case of indefiniteness of claims 1-46, under 35 U.S.C. § 112, second paragraph. As stated in the Manual of Patent Examining Procedure (MPEP):

In reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, second paragraph, by providing clear warning to others as to what constitutes infringement of the patent.

(MPEP, Section 2173.02, *citing Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1379, 55 USPQ2d 1279, 1283 (Fed. Cir. 2000). Furthermore, the essential inquiry into whether a claim complies with the requirements of Section 112, second paragraph, should not be conducted in a vacuum, but in light of:

- (A) The content of the particular application disclosure;
- (B) The teachings of the prior art; and

(C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

(MPEP, Section 2173.02).

(A) Independent Claims 1, 23 and 45 (Paragraph 14 of the Final Office Action)

The rejections of claims 1, 23 and 45 under 35 U.S.C. §112, second paragraph should be reversed because the grounds set forth in the Final Office Action dated June, 27, 2007 (as well as in the previous office actions) in support of these rejections do not interpret the claims as one of ordinary skill in the art would interpret the claims, *i.e.*, in light of the specification, the prior art, and the knowledge of one skilled in the art at the time of the invention.

In paragraph 14, the Final Office Action alleges that the "the metes and bound[s] of the method, system steps of claim[s] 1, 23, 45 are unclear" for a myriad of reasons. First, the Final Office Action alleges that "multiple instances of an activity" with respect to both "active and inactive" conditions are not defined. However, Applicants maintain that the phrases "multiple instances of an activity" and "active and inactive conditions" are thoroughly and properly defined in at least paragraphs 3-9 and 22-39 of the specification such that a person of ordinary skill would understand these claim terms. For example, paragraph 26 of the specification describes:

Accordingly, Business A maintains data for active and recently completed orders in separate database tables. By limiting those tables' contents to active and recently-completed orders, the amount of data is kept relatively small. In this manner, system performance when updating or otherwise accessing a table for active instance data does not degrade as shown in FIG. 3, and performance for accessing a completed instance table does not degrade, as records in this table are only inserted and not updated. Unlike the example of FIG. 3, overall performance remains steady over time. FIG. 4 is a block diagram illustrating this concept. Table 10 holds records for data pertaining to active purchase orders. In the example, a purchase order is active if goods ordered by a

purchase order have not yet been delivered to a customer. Active instances of an organizational activity could be defined differently in other contexts. Once a purchase order is completed, data for that purchase order is moved to table 12. In the example, a purchase order is completed when ordered goods are delivered to a customer. As with active instances, completed instances of an organizational activity could be defined differently in other contexts.

(Specification, Paragraph 26). Thus, the specification describes that in one embodiment, an "instance" with an "active condition" may be information about a purchase order where the goods have not yet been delivered to a customer. (*See id.*) Likewise, an "instance" with an "inactive condition" may be information about a purchase order that has been completed, *i.e.* where the goods have been delivered to a customer. (*See id.*)

Second, with respect to the database tables, the Final Office Action alleges that the claims do not actually integrate the first database table and the second database table but merely create a record without defining "data type." Though Applicants are not sure how the term "integrate" is being used in the Final Office Action, Applicants submit that examples of a "first database table," a "second database table," and "data type" are thoroughly and properly described in at least paragraphs 27-37, Figures 5 and 6, and Appendices A, B, and C of the specification such that a person of ordinary skill would understand the claims.

Third, the Final Office Action alleges that the steps of "creating a record in a first database table," "assigning, for records of the multiple instances in the inactive condition, values to the one or more fields," "deleting from the first table records of instances," and "creating, for records deleted from the first table, a corresponding record in a second database table" lack concrete active limitations as to how the steps are to be accomplished. Applicants respectfully

submit, however, that this third ground for rejection under Section 112 is unfounded because those of ordinary skill in the art, given their knowledge in the art, and in light of the teachings of the specification, and in particular in light of the teachings of at least paragraphs 27-37, Figures 5 and 6, and Appendices A, B, and C of the specification, would understand how the aforementioned steps could be accomplished.

Fourth, the Final Office Action alleges that "[o]ne of skill in the art would not be able to determine what exactly must be done to accomplish the goal of the preamble." As above, Applicants submit that the invention is thoroughly and properly described in the specification such that a person of ordinary skill would know how to accomplish the goal of the preamble.

Fifth, the Final Office Action alleges that it is unclear what "plurality of data types mean[s] with respect to active instance record[s] and inactive instance record[s]"; "how records of the multiple instances in the inactive condition [are assigned]"; and "what is meant by deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition." Applicants maintain, however, that this ground for rejection under Section 112 is, as above, unfounded because those of ordinary skill in the art, given their knowledge in the art, and in light of the teachings of the specification, and in particular in light of the teachings of at least paragraphs 27-37, Figures 5 and 6, and Appendices A, B, and C of the specification, would understand those terms as they are used in the claims.

Finally, at the end of paragraph 14, the Final Office Action alleges that it is unclear "what is meant by 'reducing the size' of the first database table ... in relation [to] degradation of response times..." The Final Office Action further states that the phrase "response times" is

"nowhere defined with respect to creating record, assigning for records, deleting records." Applicants maintain, however, that this, ground for rejection under Section 112 is unfounded. First, Applicant respectfully submits that a person of ordinary skill in the art, interpreting this phrase in view of the specification, would understand the phrase "reducing the size" to mean that the size of the first database table gets smaller. Furthermore, Applicants submit that the claims need not define this phrase with respect to the "degradation of response times" because the claims recite that the pertinent response times are those "when database users access the records for the instances in the active condition."

For at least the foregoing reasons, Applicants submit that independent claims 1, 23 and 45 are definite, and request that the rejection of independent claims 1, 23 and 45 under 35 U.S.C. § 112 be reversed.

(B) Dependent Claims 2-22, 24-44, and 46 (Paragraphs 15-24 of the Final Office Action)

Paragraphs 15-24 of the Final Office Action allege grounds for rejection of claims 2-22, 24-44 and 46 under 35 U.S.C. §112, second paragraph. The grounds are similar to those discussed above with respect to independent claims 1, 23 and 45. Applicants submit that claims 2-22, 24-44 and 46 are definite for at least the reasons discussed above with respect to claims 1, 23 and 45.

In addition to the similar grounds discussed above, paragraphs 15-24 allege that it is "unclear where to add the limitations of [the respective dependent claims]" to the independent claims as a further ground for rejection of claims 2-22, 24-44 and 46 under Section 112, second

paragraph. Applicants submit, however, that a dependent claim need not be “added” to an independent claim to support definiteness under 35 U.S.C. § 112, Second Paragraph, and that this is an improper ground for rejection under this section. Furthermore, the Final Office Action cites no support for the ground that a dependent claim must be “added” to an independent claim to support definiteness.

Therefore, for at least the above reasons, Applicants request that the rejection of claims 2-22, 24-44 and 46 under 35 U.S.C. § 112, second paragraph, be reversed.

(2) Rejection of Claims 1-46 Under 35 U.S.C. §101 (Paragraphs 25-27 of the Final Office Action)

Claims 1-46 stand finally rejected under 35 U.S.C. §101. Applicants respectfully submit, however, that the inventions of claims 1-46 are statutory subject matter under Section 101 because they each produce a “useful, concrete, and tangible result” as required by *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1373-74, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998), namely, reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition. Furthermore, Applicants submit that support for this explicit recitation in claim 1 is provided by at least paragraphs 3-12 and Figures 1-3 of this application, and that the inventions of independent claims 23 and 45 produce the same useful, concrete, and tangible result as the invention of claim 1.

In paragraphs 26 and 27 (pages 9-16), the Final Office Action alleges that independent claims 1, 23 and 45 fail to produce a “real-world” and useful result, and dismisses Applicants’

argument that “reducing a size of the first database table to prevent degradation of response times when database users access the record for the instances in the active condition” is indeed a useful result. For example, in paragraph 27 at page 14, in response to Applicants’ argument the Final Office Action states that the “claims do not specify that the result [is] either output, displayed or at least stored to a user.” However, Applicants submit that Section 101 does not require, and the Final Office Action does not cite to any requirement, that a “useful, concrete and tangible” result be either “output, displayed or at least stored to a user.”

As such, for at least the above reasons, Applicants request that the rejection of claims 1, 23 and 45 under 35 U.S.C. § 101 be reversed. In addition, because claims 2-22, 24-44 and 46 ultimately depend from allowable claims 1, 23 and 45, Applicants request that the rejection of claims 2-22, 24-44, and 46 under 35 U.S.C. §101 be reversed.

**(3) Rejection of Claims 1, 23, and 45 Under Non-Statutory Double Patenting
(Paragraphs 28 and 29 of the Final Office Action)**

Claims 1, 23 and 45 stand finally rejected under the Non-Statutory Double Patenting Doctrine. Concurrent with this Appeal Brief, Applicants have submitted a terminal disclaimer to obviate the rejection over commonly owned prior U.S. Patent No. 7,149,736. Therefore, Applicants submit that the instant rejection under the Non-Statutory Double Patenting Doctrine is moot.

(4) Rejection of Claims 1-19, 23-41 and 45 Under 35 U.S.C. §103(a) Over Bello et al., U.S. Patent No. 6,477,525 in View of Nakano et al., U.S. Publication No. 2003/0217075 (Paragraphs 31-50 of the Final Office Action)

Claims 1-19, 23-41 and 45 stand finally rejected under 35 U.S.C. § 103(a) over Bello in view of Nakano. Applicants respectfully submit, however, that the rejections do not set forth a proper *prima facie* case of obviousness because Bello and Nakano, either alone or in combination, fail to disclose at least the following features of independent claims 1, 23 and 45: "each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, ... creating a record in a first database table for each of the multiple instances in the active condition, ... deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table."

(A) Independent Claims 1, 23 and 45 (Paragraph 32 of the Final Office Action)

Bello and Nakano do not establish *prima facie* obviousness of claim 1 because Bello and Nakano, either alone or in combination, do not disclose at least the features of "each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, ... creating a record in a first database table for each of the multiple instances in the active condition, ... deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent

degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table."

Claim 1 is directed to a method for maintaining information regarding multiple instances of an activity, each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, the method comprising: creating a record in a first database table for each of the multiple instances in the active condition, each record containing a field for each of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the active condition; assigning, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition; deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table.

Bello, on the other hand, is directed to rewriting queries in database systems to access data sources that are not specifically referenced in the queries. (Bello, Col. 1, lns. 7-9). Bello refers to this as rewriting a query in terms of a summary based on one-to-one and one-to-many losslessness of joins. (*See e.g.*, Bello, Title) On page 20, the Final Office Action cites Bello at Col. 15, lns. 18-22 in support of the assertion that Bello teaches "deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition."

But the cited portion of Bello, which is reproduced below, is directed to rewriting a query to remove duplicate common section rows from a materialized view, as opposed to deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition:

If the materialized view contains duplicate rows from the common section, a query rewritten to access the materialized view typically has to be rewritten in a way that requires an additional step of removing duplicate common section rows from the materialized view.

(Bello, Col. 15, lns. 18-22). Bello does not disclose, teach, or suggest that the duplicate common section rows are records of instances having values in the one or more fields indicative of the inactive condition.

Further, Bello does not disclose "deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition." On page 20, the Final Office Action again cites to Bello at Col. 15, lns. 18-22 for this feature, stating:

Bello specifically teaches materialized view may be rewritten in order to delete or remov[e] duplicate records using "DISTINCT" operation as detailed at col. 15, lines 18-22, also note that Bello suggests "update" materialized view by adding or removing records periodically [col 2, line 6-8], therefore, "delete, update, add" records are integral part of any relational database management structure;

(Final Office Action, pg. 20). However, the Final Office Action fails to explain how Bello's deletion of duplicate records equates to the claimed feature of "deleting...instances having values in the one or more fields indicative of the inactive condition." (Emphasis added). In fact, the

Final Office Action fails to describe how Bello discloses "instances" in the "active condition" and the "inactive condition," as claimed in the instant application.

At page 32, the Final Office Action cites Bello at Col. 12, Ins. 24-34 and Col. 13, Ins. 17-20, alleging that "the condition for 'non-matching' join" corresponds or is "indicative of inactive condition applied to one or more database table fields or attributes." However, both citations of Bello disclose nothing more than an explanation of how and when an existing materialized view may be used to process a query. Neither citation discloses how or why "the condition for 'non-matching' join" indicates an "inactive condition" in one or more database table fields or attributes."

Bello also does not disclose "creating, for records deleted from the first table, a corresponding record in a second database table." On page 20, the Final Office Action cites Bello at Col. 16, Ins. 25-30, in support of the assertion that Bello contains such a teaching. This cited portion of Bello, however, is directed to using a "DISTINCT" operation to eliminate the effect of duplicate child-side rows when a join between the common section and the materialized view delta is one-to-many. As such, Col. 16, Ins. 25-30, of Bello does not disclose, teach, or suggest "creating, for records deleted from the first table, a corresponding record in a second database table."

The Final Office Action correctly notes at page 21 that "Bello does not specifically teach 'reducing a size of the first database table to prevent degradation of response times,'" and then goes on to allege that Nakano cures this noted deficiency. But, Nakano, either alone or in combination with Bello, does not disclose, teach, or suggest "deleting from the first table records

of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition."

Nakano discloses a method for reserving pages of a database when there is insufficient free area in the databases. (Nakano, paragraph 00002). As part of storing data in an insertion process, a first process, which inserts data into a new block, and a second process which inserts data into areas that become free when data is deleted, are used. If a designated event occurs while executing the first process, the insertion process executes the second process instead of the first process. In this way, free areas resulting from previous deletions are reused. (Nakano, Abstract). Paragraph 0007 of Nakano discusses a free space management table that stores the size of free space for each storage area. Paragraph 0014 discusses preventing the deterioration of storage efficiency and eliminating reorganization, or delaying the reorganization period, without using additional areas and without deteriorating processing performance in insert and delete processes.

So, rather than "deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition," Nakano discloses reusing storage areas from which data was previously deleted. Nakano discloses reusing storage areas in order to efficiently use storage and to eliminate or delay reorganization of memory areas, during which access to tables may be prohibited or may incur other associated overhead. (See, Nakano, paragraphs 0004 and 0012).

As such, Nakano does not disclose "reducing the size of the first database table to prevent degradation of response times."

For at least the foregoing reasons, Bello and Nakano, either alone or in combination, do not disclose, teach, or suggest "each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, ... creating a record in a first database table for each of the multiple instances in the active condition, ... deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table."

For at least the foregoing reasons, Applicants respectfully submit that Claim 1 is in condition for allowance. Claims 23 and 45 contain limitations that are analogous to the limitations of claim 1 discussed above. Claims 23 and 45 are, therefore, in condition for allowance for at least reasons similar to those discussed above in connection with claim 1.

(B) Dependent Claims 2-22, 24-44, and 46 (Paragraphs 33-49 of the Final Office Action)

Applicants further submit that dependent claims 2-22, 24-44, and 46 are proper dependent claims and ultimately depend from allowable claims 1, 23 and 45 and, thus, for at least the reasons discussed above with respect to claims 1, 23 and 45, claims 2-22, 24-44 and 46 are also

in condition for allowance. In addition, further reasons for the allowability of certain dependent claims are discussed below.

(i) Claims 2, 24 (Paragraph 33 of the Final Office Action)

Further with respect to claim 2, page 22 of the Final Office Action cites Bello at Col. 4, lns. 60-64 in support of the assertion that Bello teaches that “no record of the second table is updated after being created.” This cited portion of Bello, however, is directed to explaining that a materialized view may contain a summary column containing values generated by aggregating values contained in rows produced by a one-to-many lossless join. As such, Bello does not teach that no record of the second table is updated after being created. Claim 2 is, therefore, in condition for allowance for at least these additional reasons.

Claim 24 contains limitations that are analogous to the limitations of claim 2 discussed above. Claim 24 is, therefore, in condition for allowance for at least additional reasons similar to those discussed above in connection with claim 2.

(ii) Claims 3, 25 (Paragraph 34 of the Final Office Action)

Further with respect to claim 3, page 22 of the Final Office Action cites Bello at Col. 8, lns. 37-40 in support of the assertion that Bello teaches that “the inactive condition corresponds to an instance of the activity being complete.” This cited portion of Bello, however, is directed to explaining the three types of sets of joins that are produced by comparing a join graph of a material view with a join graph of a query. As such, Bello does not teach that the inactive condition corresponds to an instance of the activity being complete. Claim 3 is, therefore, in condition for allowance for at least these additional reasons.

Claim 25 contains limitations that are analogous to the limitations of claim 3 discussed above. Claim 25 is, therefore, in condition for allowance for at least additional reasons similar to those discussed above in connection with claim 3.

(iii) Claims 6, 28 (Paragraph 37 of the Final Office Action)

Further with respect to claim 6, page 22 of the Final Office Action cites Bello at Col. 9, Ins. 5-7 in support of the assertion that Bello teaches that “the first table contains only records for instances in the active condition.” This cited portion of Bello, however, is directed to explaining a “one-to-one” join in the context of Bello, in particular, a join where “each row in the child table is reflected in no more than one row of the join result,” and does not teach that the first table in the join contains only records for instances in the active condition. Furthermore, the Final Office Action provides no explanation as to why this cited portion of Bello provides such a disclosure. As such, Bello does not teach that “the first table contains only records for instances in the active condition.” Claim 6 is, therefore, in condition for allowance for at least these additional reasons.

Claim 28 contains limitations that are analogous to the limitations of claim 6 discussed above. Claim 28 is, therefore, in condition for allowance for at least additional reasons similar to those discussed above in connection with claim 6.

(iv) Claims 7, 29 (Paragraph 38 of the Final Office Action)

Further with respect to claim 7, page 23 of the Final Office Action cites Bello at Col. 9, Ins. 13-15 in support of the assertion that Bello discloses “wherein the one or more of the fields comprises a flag having a first value if an instance is active and a second value if an instance is inactive.” This cited portion of Bello, however, is directed to explaining a “one-to-N” join in the

context of Bello, in particular, a join where “no constraints prevent rows in the child table from combining with more than one row in the parent table.” Not only does this cited portion appear to have nothing to do with “fields compris[ing] a flag having a first value if an instance is active and a second value if an instance is inactive,” the Final Office Action provides no explanation as to how the cited portion provides the appropriate disclosure. As such, Bello does not disclose “wherein the one or more of the fields comprises a flag having a first value if an instance is active and a second value if an instance is inactive.” Claim 7 is, therefore, in condition for allowance for at least these additional reasons.

Claim 29 contains limitations that are analogous to the limitations of claim 7 discussed above. Claim 29 is, therefore, in condition for allowance for at least additional reasons similar to those discussed above in connection with claim 7.

(v) Claims 8, 30 (Paragraph 39 of the Final Office Action)

Further with respect to claim 8, page 23 of the Final Office Action cites Bello at Col. 9, lns. 63-66 in support of the assertion that Bello discloses “wherein the one or more of the fields comprises a field containing, for inactive instance records, a time of completion of the instance.” This cited portion of Bello, however, describes a “pruning process” by which various criteria are used to create a set of materialized views that could possibly be used to process a query, one such criteria being that “at least one of the tables referenced in the received query must be a base table of the materialized view.” Thus, the cited portion does not disclose “a field containing, for inactive instance records, a time of completion of the instance.” Furthermore, the Final Office Action provides no explanation as to why this cited portion of Bello provides the required

disclosure. As such, Bello does not teach that “the one or more of the fields comprises a field containing, for inactive instance records, a time of completion of the instance.” Claim 8 is, therefore, in condition for allowance for at least these additional reasons.

Claim 30 contains limitations that are analogous to the limitations of claim 8 discussed above. Claim 30 is, therefore, in condition for allowance for at least additional reasons similar to those discussed above in connection with claim 8.

(vi) Claims 11, 33 (Paragraph 42 of the Final Office Action)

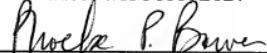
Further with respect to claim 11, page 23 of the Final Office Action cites Bello at Col. 11, Ins. 1-7 in support of the assertion that Bello discloses “wherein said creating a third database table comprises creating the third database table after a preset time period has elapsed.” This cited portion of Bello, however, discloses that an “execution plan is generated for the original query” and that the “estimated cost of executing the execution plan for the original query” is compared to the “estimated cost of executing the execution plan associated with the rewritten query.” Thus, the cited portion does not disclose “wherein said creating a third database table comprises creating the third database table after a preset time period has elapsed.” Furthermore, the Final Office Action provides no explanation as to why this cited portion of Bello provides the required disclosure. As such, Bello does not disclose “wherein said creating a third database table comprises creating the third database table after a preset time period has elapsed.” Claim 11 is, therefore, in condition for allowance for at least these additional reasons.

Claim 33 contains limitations that are analogous to the limitations of claim 11 discussed above. Claim 33 is, therefore, in condition for allowance for at least additional reasons similar to those discussed above in connection with claim 11.

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By:

Respectfully submitted,
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VIII. CLAIMS APPENDIX

1. A method for maintaining information regarding multiple instances of an activity, each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, the method comprising:

creating a record in a first database table for each of the multiple instances in the active condition, each record containing a field for each of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the active condition;

assigning, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition;

deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and

creating, for records deleted from the first table, a corresponding record in a second database table.

2. The method of claim 1, wherein no record of the second table is updated after being created.

3. The method of claim 1, wherein the inactive condition corresponds to an instance of the activity being complete.

4. The method of claim 1, wherein data in a first table record at the time of deletion is copied to the corresponding second table record.

5. The method of claim 1, wherein substantially all of the data in a first table record at the time of deletion is copied to the corresponding second table record.

6. The method of claim 1, wherein the first table contains only records for instances in the active condition.

7. The method of claim 1, wherein the one or more of the fields comprises a flag having a first value if an instance is active and a second value if an instance is inactive.

8. The method of claim 1, wherein the one or more of the fields comprises a field containing, for inactive instance records, a time of completion of the instance.

9. The method of claim 1, further comprising:
creating a view comprising the first and second tables.

10. The method of claim 1, further comprising:
creating a third database table;
ceasing creation of records in the second table; and
creating, for each of the records deleted from the first table after creation of the third table, a corresponding record in the third table.

11. The method of claim 10, wherein said creating a third database table comprises creating the third database table after a preset time period has elapsed.

12. The method of claim 10, further comprising:
deleting the second database table.
13. The method of claim 10, further comprising:
renaming the second database table.
14. The method of claim 10, further comprising:
creating subsequent database tables;
ceasing, upon creation of a subsequent table, creation of records in the previously-created table; and
creating, for each of the records deleted from the first table after creation of the last-created table but before creation of another subsequent table, a corresponding record in the last-created table.
15. The method of claim 14, further comprising:
deleting a subsequently created table for each newly created table upon the number of tables reaching a predetermined level.
16. The method of claim 15, further comprising archiving a copy of a table prior to deletion.
17. The method of claim 14, further comprising:
creating a view comprising the non-deleted tables.

18. The method of claim 14, wherein said creating a subsequent database table comprises renaming the previously-created table.

19. The method of claim 1, further comprising:

generating analysis data based on data in the first and second tables.

20. The method of claim 19, wherein said generating analysis data further comprises:

generating a first Online Analytical Processing (OLAP) cube for records in the first table,

generating a second OLAP cube for records in the second table, and

combining the first and second cubes into a virtual OLAP cube.

21. The method of claim 20, wherein said generating a second OLAP cube comprises obtaining records from the second table, and further comprising:

assigning a unique incremental identifier value to each record in the second table;

storing the incremental identifier value for the last record obtained to generate the second OLAP cube;

subsequently obtaining additional records from the second table, the additional records not being processed to form the second OLAP cube; and

updating the second OLAP cube based on the additional records.

22. The method of claim 21, wherein:

said generating a second OLAP cube comprises inputting data from second table records into a star-schema and storing said star-schema after generation of the second OLAP cube, and

said updating the second OLAP cube comprises modifying the stored star-schema and using data from the additional second table records and regenerating the second OLAP cube based on the modified star-schema.

23. A computer-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising:

creating a record in a first database table for each of multiple instances of an activity, wherein:

each instance has an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified,

the first table records are created for instances in the active condition, and each record of the first table contains a field for each of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the active condition;

assigning, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition;

deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and

creating, for records deleted from the first table, a corresponding record in a second database table.

24. The computer-readable medium of claim 23, wherein no record of the second table is updated after being created.

25. The computer-readable medium of claim 23, wherein the inactive condition corresponds to an instance of the activity being complete.

26. The computer-readable medium of claim 23, wherein data in a first table record at the time of deletion is copied to the corresponding second table record.

27. The computer-readable medium of claim 23, wherein substantially all of the data in a first table record at the time of deletion is copied to the corresponding second table record.

28. The computer-readable medium of claim 23, wherein the first table contains only records for instances in the active condition.

29. The computer-readable medium of claim 23, wherein the one or more of the fields comprises a flag having a first value if an instance is active and a second value if an instance is inactive.

30. The computer-readable medium of claim 23, wherein the one or more of the fields comprises a field containing, for inactive instance records, a time of completion of the instance.

31. The computer-readable medium of claim 23, comprising further instructions for performing steps comprising:

creating a view comprising the first and second tables.

32. The computer-readable medium of claim 23, comprising further instructions for performing steps comprising:

creating a third database table;

ceasing creation of records in the second table; and

creating, for each of the records deleted from the first table after creation of the third table, a corresponding record in the third table.

33. The computer-readable medium of claim 32, wherein said creating a third database table comprises creating the third database table after a preset time period has elapsed.

34. The computer-readable medium of claim 32, comprising further instructions for performing steps comprising:

deleting the second database table.

35. The computer-readable medium of claim 32, comprising further instructions for performing steps comprising:

renaming the second database table.

36. The computer-readable medium of claim 32, comprising further instructions for performing steps comprising:

creating subsequent database tables;

ceasing, upon creation of a subsequent table, creation of records in the previously-created table; and

creating, for each of the records deleted from the first table after creation of the last-created table but before creation of another subsequent table, a corresponding record in the last-created table.

37. The computer-readable medium of claim 36, comprising further instructions for performing steps comprising:

deleting a subsequently created table for each newly created table upon the number of tables reaching a predetermined level.

38. The computer-readable medium of claim 37, comprising further instructions for performing steps comprising archiving a copy of a table prior to deletion.

39. The computer-readable medium of claim 36, comprising further instructions for performing steps comprising:

creating a view comprising the non-deleted tables.

40. The computer-readable medium of claim 36, wherein said creating a subsequent database table comprises renaming the previously-created table.

41. The computer-readable medium of claim 23, comprising further instructions for performing steps comprising:

generating analysis data based on data in the first and second tables.

42. The computer-readable medium of claim 41, wherein said generating analysis data further comprises:

generating a first Online Analytical Processing (OLAP) cube for records in the first table,

generating a second OLAP cube for records in the second table, and

combining the first and second cubes into a virtual OLAP cube.

43. The computer-readable medium of claim 42, wherein said generating a second OLAP cube comprises obtaining records from the second table, and comprising further instructions for performing steps comprising:

assigning a unique incremental identifier value to each record in the second table;
storing the incremental identifier value for the last record obtained to generate the second OLAP cube;

subsequently obtaining additional records from the second table, the additional records not being processed to form the second OLAP cube; and

updating the second OLAP cube based on the additional records.

44. The computer-readable medium of claim 43, wherein:

said generating a second OLAP cube comprises inputting data from second table records into a star-schema and storing said star-schema after generation of the second OLAP cube, and

 said updating the second OLAP cube comprises modifying the stored star-schema and using data from the additional second table records and regenerating the second OLAP cube based on the modified star-schema.

45. A data processing apparatus for maintaining information regarding multiple instances of an activity, each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, comprising:

 at least one data storage device;

 at least one user input device; and

 a processor operatively connected to said storage device and said user input device, wherein the at least one data storage device has stored thereon a set of instructions which, when executed, configure said processor to:

 create a record in a first database table for each of the multiple instances in the active condition, each record containing a field for each of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the active condition,

 assign, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition,

delete from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition, and

create, for records deleted from the first table, a corresponding record in a second database table.

46. The data processing apparatus of claim 45, wherein the set of instructions includes additional instructions which, when executed, configure said processor to:

generate a first Online Analytical Processing (OLAP) cube for records in the first table,

generate a second OLAP cube for records in the second table, and
combining the first and second cubes into a virtual OLAP cube.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.